

MAR 6 1953

WFB

SECRET
SECURITY INFORMATION

CENTRAL INTELLIGENCE AGENCY
BOARD OF NATIONAL ESTIMATES

5 March 1953

MEMORANDUM FOR:

(OIR)

25X1

Colonel Gerald F. Lillard, USA (G-2)
Captain Allan L. Reed, USN (ONI)
Colonel Jack E. Thomas, USAF (AFOIN-2B)
Captain John A. Holbrook, USN (JIG)
Chairman, Economic Intelligence Committee
Chairman, Scientific Estimates Committee

SUBJECT : SE-38: Probable Soviet Courses of Action
in Electromagnetic Warfare

REFERENCES : a. NSC 137 and 137/1
b. NSC Action 710 (11 February)
c. My memorandum to IAC on this subject,
dated 19 February

ENCLOSURES : A. Terms of Reference for the Report of
the Scientific Estimates Committee.
B. Terms of Reference for the Report of
the Economic Intelligence Committee.

1. Reference c was approved by the IAC on 26 February.
2. The work of the SEC and the EIC is going forward in accordance with reference a and Enclosures A and B.
3. Preliminary drafts of the SEC and the EIC reports are due in this Office on 25 March; final reports are due on 7 April.
4. We are now preparing formal terms of reference for SE-38, which estimate will be based on the reports of the SEC and the EIC.
5. These terms of reference will be circulated at a later date and will be the subject of an IAC representatives

SECRET

SECRET

meeting. At this meeting we will request the attendance of representative of the SEC and the EIC. This should give ample opportunity for clearing up problems of coverage, overlaps and format for final reports.



25X1

Executive Secretary

Distribution "B"

SECRET

SECRET
SECURITY INFORMATION

ENCLOSURE "A"

SCIENTIFIC ESTIMATES COMMITTEE

19 February 1953

**SUBJECT: TERMS OF REFERENCE FOR ASSESSMENT OF SCIENTIFIC AND
TECHNICAL ASPECTS OF SOVIET ORBIT ELECTROMAGNETIC
WARFARE CAPABILITIES**

PROBLEM

To assess the capabilities and probable intentions of the Soviet Orbit for waging electromagnetic warfare against international telecommunications, including navigation in the frequency range below 30 megacycles.

DEFINITION

Electromagnetic warfare is the contest through preclusive use, jamming, interference and related measures for the control of all or parts of the radio spectrum or the denial of use by others.

SCOPE

This assessment should disclose the Soviet Bloc present capability and intent for offensive action in the field of electromagnetic warfare against long-range radio communications and navigation facilities. Assessment of the present capability will include an investigation of the present relative position of the Soviet Bloc in international frequency assignments below 30 megacycles, and of the existing Soviet machinery for jamming and its ability to be effective in various parts of the world where the communications of concern are carried out. Assessment of the probable intentions will include a discussion of any pertinent indicators such as trends in research and development, their attitude and statements at international telecommunications conferences, the vulnerability or invulnerability of their own communications to jamming, and indications that jamming will be

SECRET

SECRET

extended to internal broadcasting systems of non-orbit countries, and indications that it will be used against services other than broadcasting.

The subject should be covered assuming cold war conditions and then should be reconsidered in the light of a hot war amending the previous conclusions as necessary.

The following questions have been prepared in order to stimulate research and should be considered only as a guide and are in no sense intended to be restrictive. The answers to these and other pertinent questions should be supported by sufficient back-up data to substantiate conclusions reached.

SOME OF THE QUESTIONS BEARING ON THE PROBLEM

a. The present capability for electromagnetic warfare:

1. What is, in brief, the history of Soviet jamming of broadcasting, communication, and navigation signals?

2. In what degree do the Soviets possess the necessary parts of an efficient jamming system?

- a. Transmitters
- b. Monitoring stations
- c. Control communications
- d. Trained personnel

3. What is the capability for disruption of the long-range telecommunication circuits and navigation aids?

a. What are the geographical relationships between potential jamming stations and existing receiving sites?

b. What is the relative susceptibility to jamming of the different types of radio communications?

c. What is the possibility of the potential orbit jamming stations achieving effective jamming signal intensities in the various parts of the world in which circuits of concern are located?

SECRET

4. What is the vulnerability of the Russian communication system to the effects of their own jamming operations?

5. What is the present relative position of the Soviet Bloc in international frequency assignments compared with Western countries?

6. Are there any indications that there are assignments made in excess of their legitimate needs for the purpose of denying use by other countries?

b. Potential for Increasing Present Capabilities (over next two years):

1. Is there any indication of future action derivable from recent trends in ITU notifications?

2. What is the Soviet capability for expanding the jamming network?

c. Vulnerability to Retaliatory Measures (over next two years):

1. What is the vulnerability of the Russian communications system to jamming from outside the Soviet territory?

d. Effect of Soviet Jamming of Western Communications on Soviet Communications Intelligence Capabilities:

SECRET
SECURITY INFORMATION

ENCLOSURE "B"

ECONOMIC INTELLIGENCE COMMITTEE
SUBCOMMITTEE ON ELECTRONICS AND TELECOMMUNICATIONS

18 February 1953

**SUBJECT: SOVIET (Orbit*) CAPABILITIES AND INTENTIONS FOR
ELECTROMAGNETIC WARFARE (Below 30 Mcs)**

***Orbit comprises: USSR, Albania, East Austria, Bulgaria,
Czechoslovakia, China, East Germany,
Hungary, Poland, and Rumania.**

Scope : Facilities and Services: wire and radio.

Under what conditions: Cold war during next two years.

SUMMARY

I. THE PRESENT ORBIT RADIO AND WIRE COMMUNICATIONS PROFILE

A. Facilities and Systems

1. Soviet Union

a. Military Plant

b. Non-military

2. Satellites

a. Military Plant

b. Non-military

**3. Postwar Trends in the Development and Use of the
Orbit Communications.**

a. Military

SECRET

SECRET

b. Non-military

4. Facilities Utilized in Jamming

B. Orbit Communications Equipment Resources

1. Production

a. Soviet Union

(1) Military

(2) Non-military

b. Satellites

(1) Military

(2) Non-military

2. Imports

3. Distribution and Allocation of Equipment Resources

a. By area

b. By services in which they are to be used

c. By users

(1) Public

(2) Government

(3) Military

4. Trends

C. Present Orbit Communications Manpower Resources

1. Military

2. Non-military

D. Modernity of Applied Techniques and Technologies

1. Techniques, procedures, and methodology

2. Extent of Application of the Newer Technologies

SECRET

E. Trends

1. Post World War II to date
2. Over next two years

II. CAPABILITIES OF ENLARGING ELECTROMAGNETIC WARFARE

A. Strategic Costs

1. Diversion of resources to production of electromagnetic warfare equipment
2. Diversion of communication facilities from normal service to electromagnetic warfare service
3. Diversion of manpower
4. Maximum Utilization of present capabilities (over next two years)
5. Increasing Present Capabilities (over next two years)

B. Military Costs

1. Diversion of military resources to production of electromagnetic warfare equipment
2. Diversion of military communication facilities from normal service to electromagnetic warfare service
3. Diversion of manpower
4. Military cost of current effort
5. Maximum utilization of present capabilities (over next two years)
6. Increasing present capabilities (over next two years)

III. VULNERABILITIES AND PROBABLE EFFECTS OF RETALIATION UPON ORBIT COMMUNICATIONS OPERATIONS

A. Vulnerabilities

SECRET

1. Military

- a. Radio circuit obstruction or disruption**
- b. Non-alternate facilities**
- c. Mobile circuits**
- d. Other**

2. Non-military

- a. Radio circuit obstruction or disruption**
- b. Non-alternate facilities**
- c. Mobile circuits**
- d. Other**

B. Readjustment Capability to Overcome Retaliation

1. Military

- a. Reversion to landline, micro-wave, airmail, courier, etc.**
- b. Rerouting of traffic**
- c. Revision of priority classification of traffic**
- d. End Results**

2. Non-military

- a. Reversion to landline, micro-wave, airmail, courier, etc.**
- b. Rerouting of traffic**
- c. Revision of priority classification of traffic**
- d. End results**

IV. AN ESTIMATE OF SOVIET ORBIT COLD WAR ELECTROMAGNETIC WARFARE INTENTIONS

A. As to Minimization of "Electromagnetic Warfare Vulnerabilities"

SECRET

B. As to Maximisation of Cold War Electromagnetic Warfare

V. CONCLUSIONS

POSTSCRIPT: Effects of a Hot War upon the Conclusions reached
in (V) for a Cold War

A. Military

B. Non-military

SECRET